

Jerry Zhu

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EDUCATION

Stony Brook University

Bachelor of Science, Computer Science

Stony Brook, NY

August 2022 - May 2026

- Coursework: Discrete Mathematics, Linear Algebra, Data Structures and Algorithms, Probability and Statistics
- Extracurriculars: Stony Brook Game Developers, Stony Brook Computing Society

TECHNICAL SKILLS

Languages: C++, C, C#, GLSL, Common Lisp, Scheme, Java, Python, JavaScript, TypeScript

Libraries & Technologies: SDL2, Win32 API, OpenGL & WebGL, Unity, Godot, MonoGame, Emscripten

Developer Tools: Git, Mercurial, Visual Studio, GDB, Valgrind, RenderDoc, Bash, Trello, Linux

PROJECTS

Soul Walker - Released on [itch.io](#) | C#, Unity

April 2023

- Completed turn-based first person dungeon crawler for Dungeon Crawler Jam 2023 with 3 levels
- Raycast based movement system allowing for slopes and verticality in level design
- Designed a custom 'body possession' mechanic to follow the given jam theme 'duality'
- Implemented a 3D ingame inventory system for items and equipment

CrankLang | C++

March 2023 - Present

- Implemented a statically typed procedural programming language with a handwritten recursive descent parser and compiler in C++
- Compiles programs from an abstract syntax tree into C++ code
- Supports a foreign function interface system which can interact with C libraries, dynamic arrays and strong enums
- Example programs included for basic graphical games such as Pong

JRPG Game: Legends | C, SDL2, Emscripten

June 2022 - Present

- 2D multiplatform software rendered Tactics JRPG game engine in C, running on desktop with SDL2 and web through **Emscripten**
- Developed custom level editor, world map editor, and save formats with **backwards compatibility**
- Developed a parser for a lisp-based scripting language used for game events, cutscenes, and data
- Implemented a particle system, SNES Mode7 inspired world map, and BFS based pathfinding for entities
- Utilized a custom memory management scheme through arenas and pools removing allocations at runtime
- Implemented a **SIMD** optimized **multithreaded** renderer improving framerate by 200%

2D Game Framework | C, OpenGL, SDL2, Emscripten

July 2021 - October 2021

- Developed a minimum dependency cross-platform game framework in C using **SDL2** and **OpenGL** targeting desktop and web with **Emscripten**
- Utilizes a plugin system with dynamic link libraries (DLLs) and a custom build system to allow for statically linking the framework with game code
- Designed a **high performance sprite batcher with** compressed vertex information, screen-based culling, and custom shader support
- Designed a **glyph-cache** that allows rendering **arbitrary Unicode text** with high performance and low memory usage
- Implemented useful development features such as a **Quake style debug console** and **hot reloadable assets** which include textures and shaders

VOLUNTEER EXPERIENCE

Development Team Lead

February 2021 - September 2022

The Environment Project

Queens, NY

- Led the development of Recyclopedia, a custom wiki application with 4 team members
- Maintained and redesigned the organization **WordPress** website which reached 10K visitors
- Authored the event page for the Flushing Meadows Corona Park clean-up which resulted in 111 participants
- Managed collaboration through **GitHub**, **Trello**, and bi-weekly pair-programming meetings on **Zoom** and **VS-Code**